

Stat 3050 Section 3—Engineering Statistics

Spring 2025

Prerequisites: Math 1650 (Calculus 1)

Lectures: TR 11:00 am -12:15 pm in 1115 PEARSON

Instructor: Dr. Vivek Roy

Office, Phone, and E-mail: 3415 Snedecor Hall; 294-8701; vroy@iastate.edu

Office Hours: M 1:30- 2:30 pm, T 12:30- 1:30 pm, or by appointment

Course Management: All course materials are posted on the course Canvas web page.

TA: Yilun Liu (liu00015@iastate.edu)

TA Office Hours: H 3–4 pm and F 10:30 am –12 noon in 3205 Snedecor; or by appointment.

Topics: Statistics for engineering problem solving. Principles of engineering data collection; descriptive statistics; elementary probability distributions; principles of experimentation; confidence intervals and significance tests; one, two, and multi-sample studies; regression analysis; use of statistical software.

Learning Outcomes:

- Students will be introduced to the fields of probability and statistics. They will learn about data and how we use it to learn about the world. They will learn about methods of collecting data and working with descriptive statistics- both graphically and numerically. Students will learn about probability that will be applied when working with data models.
- Students will learn about random variables as a model for data. We cover discrete and continuous random variables. We introduce several common discrete and continuous probability distributions. Students will also learn about joint probability models. We cover an important result in probability called the Central Limit Theorem.

- Students will know fundamental methods for statistical inference such as parameter estimation, confidence intervals and hypothesis tests.
- Students will learn about One-Way ANOVA and Regression-both simple linear and multiple regression. They will be able to do inference in both scenarios.

Textbook: Probability and Statistics for Engineering and the Sciences, 9nd Edition by Jay Devore

- Class attendance: You are responsible for all material presented in lecture and/or assigned as required reading.
- Homework: Weekly assignments will be due online on Fridays. No late homework will be accepted without official excuse.
- Two in-class exams are scheduled tentatively on **February 20th and April 3rd**.
- One two-hour comprehensive final exam during the final week on **Wednesday, May 14th at 9:45 - 11:45 AM**.

Course Grade:	Assignments	30%
	Two exams	25% each (50% total)
	Final exam	<u>20%</u>
		100%

- **Free Expression** Iowa State University supports and upholds the First Amendment protection of [freedom of speech](#) and the principle of [academic freedom](#) in order to foster a learning environment where open inquiry and the vigorous debate of a diversity of ideas are encouraged. Students will not be penalized for the content or viewpoints of their speech as long as student expression in a class context is germane to the subject matter of the class and conveyed in an appropriate manner.

No employee, student, applicant, or campus visitor is compelled to disclose their pronouns. Anyone may voluntarily disclose their own pronouns.

- **Accessibility Statement**

Iowa State University is committed to advancing equity, access, and inclusion for students with disabilities. Promoting these values entails providing reasonable accommodations where barriers exist to students' full participation in higher education. Students in need of accommodations or who experience accessibility-related barriers to learning should work with Student Accessibility Services (SAS) to identify resources and support available to them. Staff at SAS collaborate with students and campus partners to coordinate accommodations and to further the academic excellence of students with disabilities. Information about SAS is available online at www.sas.dso.iastate.edu, by email at accessibility@iastate.edu, or by phone at 515-294-7220.

- **Prep Week** This class follows the Iowa State University Prep Week policy, as noted in the ISU Policy Library and the Senior Vice President and Provost's website.

- **Harassment and Discrimination** Iowa State University does not discriminate on the basis of race, color, age, ethnicity, religion, national origin, pregnancy, sexual orientation, gender identity, genetic information, sex, marital status, disability, or status as a U.S. Veteran. Inquiries regarding non-discrimination policies may be directed to Office of Equal Opportunity, 2680 Beardshear Hall, 515 Morrill Road, Ames, Iowa 50011, Tel. 515-294-7612, Hotline 515-294-1222, email eooffice@iastate.edu.

- **Religious Accommodation** Iowa State University welcomes diversity of religious beliefs and practices, recognizing the contributions differing experiences and viewpoints can bring to the community. There may be times when an academic requirement conflicts with religious observances and practices. If that happens, students may request the reasonable accommodation for religious practices. In all cases, you must put your request in writing. The instructor will review the situation in an effort to provide a reasonable accommodation when possible to do so without fundamentally altering a course. For students, you should first discuss the conflict and your requested accommodation with your professor at the earliest possible time. You or your instructor may also seek assistance from the Dean of Students Office at 515-294-1020 or the Office of Equal Opportunity at 515-294-7612.

- **Academic Dishonesty:** The class will follow Iowa State University's policy

on academic misconduct (5.1 in the Student Code of Conduct). Students are responsible for adhering to university policy and the expectations in the course syllabus and on coursework and exams and for following directions given by faculty, instructors, and ISU Test Center regulations related to coursework, assessments, and exams. Anyone suspected of academic misconduct will be reported to the Office of Student Conduct in the Dean of Students Office. Information about academic integrity and the value of completing academic work honestly can be found in the Iowa State University Academic Integrity Tutorial.